

LegacyPlus 7-OR Return Path Transmitter

Replacement/Upgrade Transmitter Modules for Philips/MX 7-OR DiamondPoint HFC Nodes

Features / Benefits

- FP, DFB (1310 or 1550nm) or CWDM (ITU-grid 1470-1610nm) return path optical transmitters
- Compatible with the installed base of Philips/Magnavox 7-OR DiamondPoint HFC optical nodes
- Performs significantly better than or equal to the original OEM modules
- Reduced laser clipping in VoIP deployments via DFB or CWDM module replacement of FP lasers
- Ideal for systems undergoing “node splitting” for return path segmentation purposes
- Low cost alternative to DWDM transmitters, digital reverse & other node segmentation methods
- RF test point (-10 dB) & Plug-in pad attenuator facilitate easy adjustment of RF Input drive level
- Convenient DC test point scaled to Optical Output power (1V/mW)
- Low power consumption & good heat dissipation for increased service life and reliability
- Field proven since 1999: Olson Tx & Rx modules successfully deployed in 1000’s of nodes worldwide

The **OLSON TECHNOLOGY, INC. (OTI) LegacyPlus** series of Replacement & Upgrade Modules for Installed HFC Optical Nodes is a high performance, low cost, field proven group of custom engineered products specifically designed to upgrade the functionality of installed optical nodes from many major manufacturers by dramatically increasing upstream or downstream bandwidth without having to replace optical nodes or deploy extra fiber, 1550nm ITU grid DWDM lasers, baseband digital reverse modules, or other expensive return path segmentation technologies.



OLSON TECHNOLOGY, INC. (OTI) LegacyPlus 7-OR Return Path Transmitter Modules have been specifically designed so that node modules can be replaced, if needed, with any module or unit of the same type and the same optical and electrical specifications from Philips/Magnavox, the original manufacturer of the DiamondPoint 7-OR node. Hence, the replacement of a node based Return Path Transmitter Module does not require replacement of the corresponding headend optical receiver or vice versa.

LegacyPlus products provide outstanding return path performance, system design flexibility and scalability in almost any network architecture from traditional Hybrid Fiber Coax (HFC) to the newer fiber deep Targeted

Service Delivery (TSD) area topologies. There are two general types of reverse transmitters available: (1) Fabry-Perot (FP) type, which are lower priced and designed for low traffic data carrier transmission applications with less stringent performance requirements (i.e. element management, set top box communications, etc.), and; (2) DFB/CWDM-type, which support analog video channels and/or high-capacity data traffic (i.e. Internet access, telephony, etc.).

The introduction of VoIP telephony adds even tougher constraints to return path performance. Originally deployed FP transmitter modules tend to exhibit laser clipping and poor NPR performance. The end result of clipping is packet loss, which is very detrimental to VoIP. **LegacyPlus** DFB & CWDM Tx modules, with their inherently higher dynamic range, provide cost effective and robust migration alternatives to FP laser reverse transmitters during pre-VoIP plant upgrades.

In addition to the many “standard” **LegacyPlus** modules currently available to system operators, **OLSON TECHNOLOGY, INC. (OTI)** continues to work with MSOs to define, refine, develop and manufacture new solutions custom tailored to their individual system requirements. For the latest information or to discuss possible module availability or design for unlisted nodes, please contact **OLSON TECHNOLOGY, INC. (OTI)** directly.

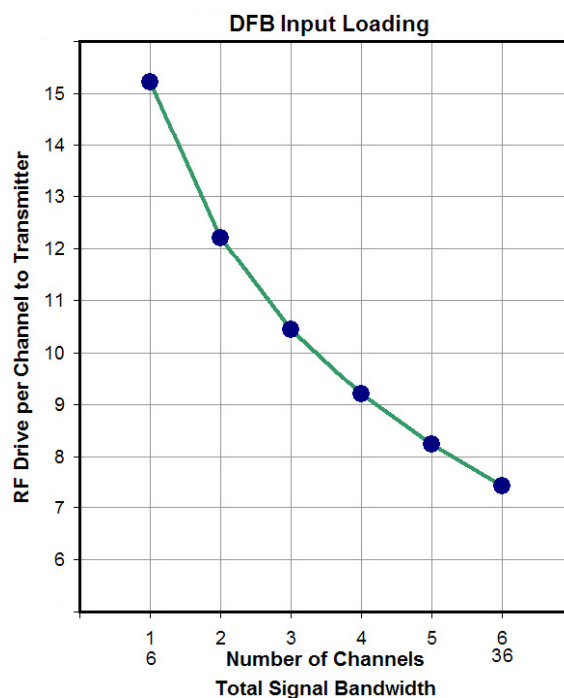
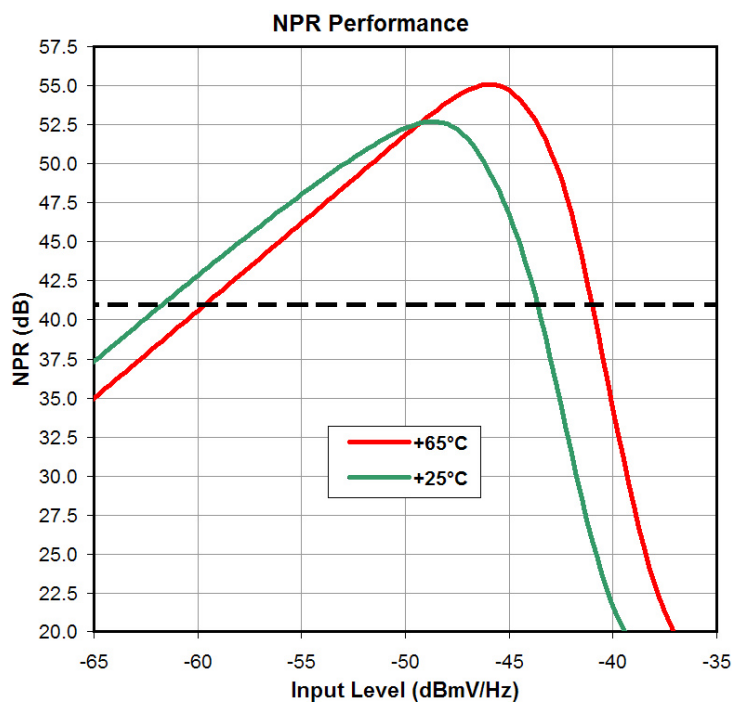
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Specifications (Return Path Optical Transmitters: FP, DFB & CWDM)

RF INPUT & PERFORMANCE PARAMETERS:

Frequency Response Range (± 1.0 dB)	5 MHz to 220 MHz	
Return Path NPR (DFB/CWDM) *	> 15dB over 41dB NPR*	
Return Path Threshold (DFB/CWDM) *	-57 dBmV/Hz	@41dB NPR Threshold
Return Path NPR (FP) *	> 15dB over 37 dB NPR*	
Return Path Threshold (FP) *	-57 dBmV/Hz	@37 dB NPR Threshold
Input Return Loss	> 16 dB	
Input Level	(see graph)	
Laser Drive Test Point	SMB standard connector	

* NOTE: Measured with 10dB of fiber & Olson Model # OTOR-300 Return Receiver and 6-channel 35MHz loading.



OPTICAL OUTPUT PARAMETERS:

Optical Output (FP)	2 mW (unisolated and isolated versions) @ 1310nm
Optical Output (DFB)	1, 2 or 3 mW @ 1310nm / 2.5 mW @ 1550nm
Optical Output (CWDM)	2.5mW @ 1470, 1490, 1510, 1530, 1550, 1570, 1590 or 1610nm
Return Loss	> 60 dB with APC connector
Optical Connector	SC/APC standard; FC/APC optional (8° APC); SC/UPC optional

USER INTERFACE

Laser Drive Test Point	SMB standard connector
Optical Output Level	1V/mW
Laser Current	20mV/mA
Interstage RF Plug-In Pad	5 dB to control Input RF signal path to laser

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Specifications (continued)

ELECTRICAL, ENVIRONMENTAL & MECHANICAL PARAMETERS

Dimensions (WxHxD)	3.21" x 1.96" x 1.00" (8.025 cm x 4.9 cm x 2.5 cm)
Weight	0.075 lbs (0.033 kg)
Operating Temperature Range	-40 to +70°C (temperature at the mounting plate)
Powering	+24 V _{DC}
Power Dissipation	< 3 W
Mounting	inside Philips/Magnavox 7OR DiamondPoint optical node

Ordering Information

<u>Model Number</u>	<u>Description (Optical Output Power; Wavelength; Laser Type; Optical Connector)</u>
7-OR-RT-SA/302	R-TX Module; MX/Phillips 7-OR; 5-220MHz; 2mW unisolated 1310nm FP; SC/APC
7-OR-RT-SA/303	R-TX Module; MX/Phillips 7-OR; 5-220MHz; 2mW isolated 1310nm FP; SC/APC
7-OR-RT-SA/304	R-TX Module; MX/Phillips 7-OR; 5-220MHz; 3mW 1310nm DFB; SC/APC
7-OR-RT-SA/304/1MW	R-TX Module; MX/Phillips 7-OR; 5-220MHz; 1mW 1310nm DFB; SC/APC
7-OR-RT-SA/304/2MW	R-TX Module; MX/Phillips 7-OR; 5-220MHz; 2mW 1310nm DFB; SC/APC
7-OR-RT-SA/505	R-TX Module; MX/Phillips 7-OR; 5-220MHz; 1.5mW 1550nm DFB; SC/APC
7-OR-RT-SA/547	R-TX Module; MX/Phillips 7-OR; 5-220MHz; 1.5mW 1470nm CWDM DFB; SC/APC
7-OR-RT-SA/549	R-TX Module; MX/Phillips 7-OR; 5-220MHz; 1.5mW 1490nm CWDM DFB; SC/APC
7-OR-RT-SA/551	R-TX Module; MX/Phillips 7-OR; 5-220MHz; 1.5mW 1510nm CWDM DFB; SC/APC
7-OR-RT-SA/553	R-TX Module; MX/Phillips 7-OR; 5-220MHz; 1.5mW 1530nm CWDM DFB; SC/APC
7-OR-RT-SA/555	R-TX Module; MX/Phillips 7-OR; 5-220MHz; 1.5mW 1550nm CWDM DFB; SC/APC
7-OR-RT-SA/557	R-TX Module; MX/Phillips 7-OR; 5-220MHz; 1.5mW 1570nm CWDM DFB; SC/APC
7-OR-RT-SA/559	R-TX Module; MX/Phillips 7-OR; 5-220MHz; 1.5mW 1590nm CWDM DFB; SC/APC
7-OR-RT-SA/561	R-TX Module; MX/Phillips 7-OR; 5-220MHz; 1.5mW 1610nm CWDM DFB; SC/APC

* NOTE: Substitute "SU" for "SA" if SC/UPC optical connector is required

NOTE: Substitute "FA" for "SA" if FC/APC optical connector is required

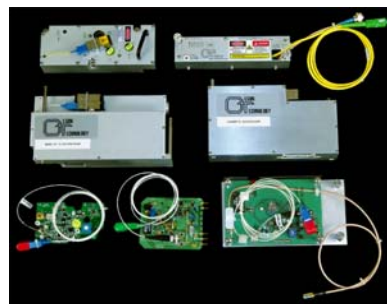
NOTE: Substitute "FU" for "SA" if FC/UPC optical connector is required

Additional HFC Optical Nodes supported by Olson's LegacyPlus

The following is a partial list of HFC optical nodes for which Return Transmitter and/or Forward Receiver Modules are either available or under development.

Please contact **OLSON TECHNOLOGY, INC. (OTI)** regarding availability of units not listed below.

* ADC/C-COR	ISX-3030/3040 & 3021
* Antec/Texscan	Gateway II, GlassPal & FlameThrower
* Arris/Antec	LLRX100, LLRX200, LLRX400 Gemini
* Augat	Megaflex
* Harmonic	HLR3830 & HLN3841/3842/3843/3844 PWRBlazer
* Motorola/GI	BTN-2, AM-MBR & SG2000/2440
* Philips/Magnavox	7-OR Diamond Point
* Scientific-Atlanta	6920, 6940/6942/6944 & Gainmaker



Quality / Engineering / Innovation

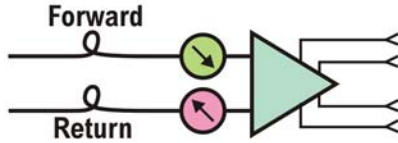
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LegacyPlus 7-OR Return Path Transmitter

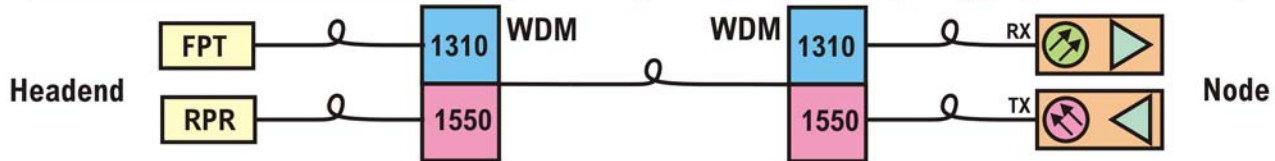
Typical Applications

1. STANDARD 2-WAY CONFIGURATION *(for Node Upgrade, Maintenance and Repair):*

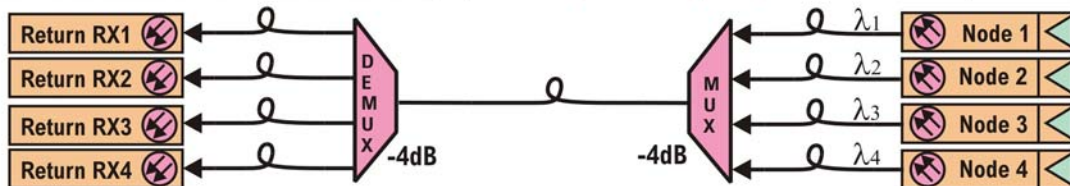


- A. One-way to Two-way Node Upgrade
- B. OEM Module Replacement for Routine Maintenance and Repair
- C. FP to DFB Laser Upgrade for VoIP Telephony System Deployment

2. SINGLE FIBER CAPACITY DOUBLING *(WDM in forward/return node splitting for fiber conservation):*



3. MULTIPLE NODE RETURN PATH MULTIPLEXING *(CWDM for return path fiber conservation)*



4. RETURN PATH SEGMENTATION & REDUNDANCY *(WDM or CWDM for return fiber conservation):*

